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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-------------------------|-------------|----------------------|---------------------|------------------|
| 10/007,239 | 11/13/2001 | Seok-Jin Lee | 3798P2384 | 3680 |
| 23504 | 7590 | 01/23/2004 | EXAMINER | |
| WEISS & MOY PC | | | | NGUYEN, TRAN N |
| 4204 NORTH BROWN AVENUE | | | | ART UNIT |
| SCOTTSDALE, AZ 85251 | | | | PAPER NUMBER |
| | | | | 2834 |

DATE MAILED: 01/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/007,239 | LEE, SEOK-JIN | |
| Examiner Tran N. Nguyen | Art Unit 2834 | | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 28 April 2003.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

4) Claim(s) 1-7 is/are pending in the application.

4a) Of the above claim(s) 5-7 is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-4 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) 1-7 are subject to restriction and/or election requirement.

Disposition of Claims

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.

4) Interview Summary (PTO-413) Paper No(s) _____.

5) Notice of Informal Patent Application (PTO-152)

6) Other: _____.

DETAILED OFFICE ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. **Figures 1-2** should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).

The applicant is requested to provide the drawing of the second supplementary core's (134b) the iron sheet with holes configuration and arrangement for illustration clarification.

Specification

The disclosure is objected to because of the following informalities: in the specification paragraph [0030] "Each thin iron sheet 120 forming the first supplementary core 134a (hereinafter called first supplementary core sheet), has a hole 121, corresponding to the thin iron sheets 110 forming the main core 131. From the hole 121, induced conductor holes 123 are formed to correspond to the thin iron sheets 110 of the main core 131. Additionally, the calking 124 and the magnetic flux leakage preventing holes 125 are also formed to correspond to the thin iron sheets 110 of the main core 131. The magnet holes 112, formed at the thin iron sheets 110 of the main core 131, are not formed at the thin iron sheets 120 of the first supplementary core 134a, and the hole 121 is extended. The hole 121 is expanded to correspond to the outer structure connected with the rotor 130. On the other hand, the thin iron sheets (not shown) forming the second supplementary core 134b has the same size hole as the thin iron sheets 110 of the main core 131. Except for the hole, the shape of the second supplementary core 134b is the same as that of the first supplementary core 134a" is unclear because of the following:

In the phrase "The magnet holes 112, formed at the thin iron sheets 110 of the main core 131, are not formed at the thin iron sheets 120 of the first supplementary core 134a, and the hole 121 is extended." is unclear because according to Fig 3B, both supplementary core (134a,

134b) do not have magnet-embedding hole (112) as in the main core sheet (110) but this is not clearly described. Rather the spec only mentions that iron sheets (120) of first supplementary core (134a) do not have magnet holes (112).

In the phrase "*The hole 121 is expanded to correspond to the outer structure connected with the rotor 130. On the other hand, the thin iron sheets (not shown) forming the second supplementary core 134b has the same size hole as the thin iron sheets 110 of the main core 131. Except for the hole, the shape of the second supplementary core 134b is the same as that of the first supplementary core 134a*" is unclear because the term "the hole" is confusing since there are center hole and conductor holes and magnet holes, does it means the center hole?

Appropriate correction is required.

Election/Restriction

3. Applicant's election of claims 1-4 on 4/28/03 is acknowledged. Applicant provides traversal arguments to the restriction requirement. These arguments are addressed as following:

The applicant argues that "the claims are interrelated to one another and should be prosecuted as part of the same application. The claims relate to a rotor structure and a method of making the rotor structure."

In response to this argument, first of all, it is not persuasive because the applicant failed to address how the method of making the rotor and the rotor structure are interrelated. The applicant simply states that the two groups of inventions are interrelated.

On the contrary, the two group are independently distinct in term of the process of making and the structure of the device. The fields of search for a method of making a device and for a structure of the device, i.e., the product, are not coextensive, and determinations of patentability for claims of a method of making a device and claims of the device's structure are different.

In the determinations of patentability for claims of a method of making a device, the fabrication process includes its sequential order of fabricating steps and/or tools used in these steps of forming the device are considered significant.

On the other hand, in the determinations of patentability for claims of the device's structure the limitations of device's elements and their structural relationships as well as their functional/operational relationships are considered significant. In other words, in the device claimed invention, or in a product-by-process feature of a device, the method of forming the device is not germane to the issue of patentability of the device itself. (*In re Thorpe*, 227 USPQ 964, 966.)

Therefore, The fields of search for a method of making a device and for a structure of the device, i.e., the product, are not coextensive and the consideration for patentabilities are different and independent. This is the reason why there are two different and separate classifications for the method of forming the lamination core and the lamination core structure.

Thus, the restriction, which is set forth in the previous Office Action, is deemed to be proper and hereby made FINAL.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites “a supplementary cores” grammatically incorrect because “a” (a singular form) and “cores” (a plural form). Should it be “a supplementary core” instead.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art figs 1-2 (hereafter AAPA Figs 1-2) in view of **Neumann (USP 4469970)**.

AAPA discloses a rotor of a synchronous motor comprising a conventional rotor of a synchronous motor; wherein the rotor (20) includes an iron core (22), which shown by Fig 1, is formed with two sublaminations: first lamination section (i.e., main core) having a small center hole; and a second lamination section (i.e., supplementary core) having larger center hole. These two lamination sections are read as main core and supplementary core; and the rotor further includes aluminum bars (21) passing through the iron core (22). The two sections of iron core (22) are made of a plurality of laminated thin iron sheets (10). A plurality of aluminum-inserting holes (12) are radially formed around the outer circumference of the two iron cores section, wherein the aluminum bars are ingoted through the induced holes (12) of the main core and the supplementary core.

AAPA Fig. 1-2 substantially discloses the claimed invention, except for the following:

- (1) a plurality of inserting holes and a plurality of magnets inserted therein
- (2) the supplement cores, i.e., two supplemental cores, are disposed at both ends of the main cores.

Neumann discloses rotor of a synchronous motor comprising: a main core having a plurality of laminated plates (50), wherein the main core having a plurality of magnet-embedding holes (unnumbered in fig 3A), and a plurality of supplemental cores (20) (fig 4 shows 4 supplemental core sections) with two supplemental cores disposed at both ends of the main core.

Furthermore, the main core and the supplemental cores have corresponding holes at a center and a plurality of conductor holes, wherein the conductors (17) ingoted through the induced conductor holes of the main core and the induced conductor holes of the supplemental cores. Neumann's rotor also has a number of magnet holes and a corresponding number of magnets being embedded in the main core. Neumann discloses that the supplemental cores periodically greatly increases rotor strength in the rotor while the embedded magnets in the rotor core enhance the magnetic characteristics of the rotor in order to improve efficiency thereof.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the AAPA rotor by configuring the rotor with a plurality of inserting holes and a plurality of magnets inserted therein and also provide the main core with a plurality of supplemental cores being disposed at both ends of the main cores, as taught by Neumann. Doing so would respectively provide the rotor with magnetic enhancing means for improved efficiency and mechanical support means for increasing the rotor mechanical strength.

5. **Claims 2-3** are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA Figs 1-2 and Neumann, as applied in the rejection against the base claim, and further in view of **Kloster et al (US 5,142,178)**.

The combination of **AAPA Figs 1-2 and Neumann**, refs substantially discloses the claimed invention, except for the added limitations of the main and supplemental cores are laminated with a plurality of thin iron sheets having calkings corresponding to each other.

Kloster, however, teaches this features (figs 1-2) for securing the laminated core sheets together without extra fastening means.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the AAPA rotor by configuring the rotor with a plurality of laminated core sheets having calkings corresponding to each other, as taught by Kloster. Doing so would provide securing means to stack the laminated core sheets together without extra fastening means.

Suggestion: If claim 1 were amended by adding the following features that would put the application in a favorable consideration for allowance.

Last line of claim 1, after “*conductor holes of the supplementary cores*” add “; *wherein said supplementary cores do not have any magnet holes and said supplementary cores cover said magnet holes at both ends of said main core*” (as shown in fig 3A and discussed in spec [0030])

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tran N. Nguyen whose telephone number is (703) 308-1639. The examiner can normally be reached on M-F 7:00AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Burton Mullins can be reached on (703)-305-7063. The fax phone number for the organization where this application or proceeding is assigned is (703)-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-308-1782.



TRAN NGUYEN
PRIMARY EXAMINER